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| APPLICATION NO.                                                            | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/534,137                                                                 | 11/04/2005  | Sergei Levchik       | 1321-18 PCT US      | 8471             |
| 28249                                                                      | 7590        | 11/27/2006           | EXAMINER            |                  |
| DILWORTH & BARRESE, LLP<br>333 EARLE OVINGTON BLVD.<br>UNIONDALE, NY 11553 |             |                      | SELLERS, ROBERT E   |                  |
|                                                                            |             |                      | ART UNIT            | PAPER NUMBER     |

1712

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/534,137 | <b>Applicant(s)</b><br>LEVCHIK ET AL. |  |
|                              | <b>Examiner</b><br>Robert Sellers    | <b>Art Unit</b><br>1712               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                      |                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                          | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                 | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>May 6, 2005</u> . | 6) <input type="checkbox"/> Other: _____                                                |

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The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 and 20-24 of copending Application No. 10/491,690 in view of Levchik et al. Publication No. 2005/0020800.

This is a provisional obviousness-type double patenting rejection.

1. The claims of the copending application require a thermoset resin composition comprising from about 20% to about 100% (claim 2) of a hydroxy-terminated oligomeric phosphonate containing the repeating structure  $\text{-OP(=O)(R)-Arylene-}$  wherein R is alkyl (within the ambit of the instantly claimed reactive phosphonate compound according to page 3, lines 11-31 of the specification) wherein the thermosetting resin is an epoxy resin (claim 9).

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2. The claimed inorganic filler is not recited. Levchik et al. is the U.S. publication of the copending application which sets forth a formulation prepared from an epoxy resin, an OH end groups-containing oligomeric phosphonate (page 2, paragraph 39) in an amount of preferably from about 10% to about 30% by weight (page 2, paragraph 44) which "can be used with other complementary flame retardants that are known to the person of ordinary skill in the art including, alumina trihydrate (page 2, paragraph 47, a suitable species of the instantly claimed inorganic filler according to page 2, lines 19-20 and page 5, line 11).

3. It would have been obvious to one of ordinary skill in the art to combine the OH end groups-containing oligomeric phosphonate of the copending application with the alumina trihydrate of Levchik et al. in order to optimize the flame retardance.

Furthermore, "[i]t is *prima facie* obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be useful for the very same purpose . . . [T]he idea of combining them flows logically from their having been individually taught in the prior art

(*In re Kerkhoven*, 205 USPQ 1069, 1072, CCPA 1980).'" Both the OH end groups-containing oligomeric phosphonate and alumina trihydrate is taught by Levchik et al. to be useful for the same purpose as a flame retardant.

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4. Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of Levchik et al. Publication No. 2005/0020800 in view of Nagase et al. Patent No. 5,945,222. Although the conflicting claims are not identical, they are not patentably distinct from each other because Levchik et al. claims a thermoset resin composition obtained from an epoxy resin (claim 9) and as little as about 20% by weight (claim 2) of a hydroxy-terminated oligomeric phosphonate.
5. The claimed inorganic filler, optional polybenzoxazine resin and optional co-curing agent are not recited. Nagase et al. (col. 2, lines 23-36) reports thermosetting resin compositions containing dihydrobenzoxazine rings-containing resins, novolac phenolic resins (within the confines of the claimed co-curing agent according to page 2, lines 10-11 and page 5, lines 5-6 of the instant specification), an epoxy resin (col. 5, lines 31-52) and fillers (col. 6, line 8).
6. It would have been obvious to mix the filler of Nagase et al. such as an inorganic filler into the composition of Levchik et al. in order to adjust the viscosity.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 2001-19746 (Japanese '746).

7. Japanese '746 espouses a composition derived from 5-60% by weight of a polyepoxide (translation, page 5, paragraph 28), at least 5% by weight of a hydroxy-terminated polyphenylphosphonate of formula I (page 3, paragraph 21), a phenol novolak latent curing agent (page 5, paragraphs 29 and 32) and an inorganic filler such as alumina or from 1-50% by weight of silica (pages 6-7, paragraphs 42 and 43).

8. Although the reaction product of the hydroxy-terminated polyphenylphosphonate and polyepoxide is desired and exemplified, page 4, paragraph <sup>22</sup><sub>^</sub> also indicates the suitability of employing the components as a mixture. It would have been obvious to one of ordinary skill in the art to utilize the hydroxy-terminated polyphenylphosphonate and polyepoxide of Japanese '746 in the form of a mixture in order to distribute the flame retardance to the other components in the composition such as the phenol novolak and inorganic filler.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent No. 2001-302879 (Japanese '879) in view of Levchik et al., Japanese '746 or Fearing Patent No. 4,268,633.

9. Japanese '879 (CAPLUS abstract) shows a blend of 21.3% by weight of an epoxy resin, 10.6% by weight of a phosphorus compound, 21.3% by weight of an aluminum hydroxide filler and 21.3% by weight of a phenol novolak resin.

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10. The claimed reactive phosphonate curing agent is not recited. Levchik et al. and Japanese '746 are described hereinabove and set forth an OH end groups-containing oligomeric phosphonate and hydroxy-terminated polyphenylphosphonate, respectively. Fearing teaches hydroxyl-bearing poly(oxyorganophosphate/phosphonate) flame retardants (col. 8, lines 11-20 and 54-55) having "general utility for imparting flame retardance to otherwise flammable materials (col. 8, lines 21-23)."

11. It would have been obvious to employ the hydroxy-functional polyphosphonates of Levchik et al., Japanese '746 or Fearing as the phosphorus compound of Japanese '879 in order to impart flame retardance by chemically incorporation into the cured product via the reaction between the epoxy groups of the epoxy resin and the hydroxy groups of the polyphosphonates.

12. More favorable consideration would be given with respect to Japanese '746 and '879 if the reactive polyphosphonate curing agent were limited to a hydroxy-terminated oligomeric phosphonate comprising the repeating unit  $-OP(=O)(R)-Arylene-$  wherein R is alkyl as described on page 3, lines 19-22. The specification should be amended to insert the identification of R as a lower alkyl as supported by page 3, lines 19-24 of the specification.

13. PCT Publication No. WO 03/029258 is an equivalent of Levchik et al. and the publication date of April 10, 2003 is antedated by the provisional application no. 60/425,196 date of November 8, 2002.

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rs 11/3/2006

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